

PARASETI

ET CONTACT VIA SUBTLE ENERGIES

Have signals from intelligent life elsewhere in the Universe passed us by because our technology is not designed to detect a range of more subtle energy frequencies?

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Are we alone in the Universe? This is probably one of the most important questions to be answered, yet modern science seems reluctant to address it. It is almost certain that life does exist in some other part of the Universe; it is just a question of how far away and how evolved it is, never mind its state of technological development. What would really hit home would be tangible evidence of an extraterrestrial intelligence that was as technologically developed as ourselves, perhaps more so, if only to just say "Hi out there!" Face-to-face contact would not be necessary; just to know we are not alone would be enough.

With this in mind, NASA started a program that was directed towards scanning the eternal cosmos for intelligent life, hoping to find a signal from a civilisation as technologically developed as our own. This project was named SETI: the Search for Extra-Terrestrial Intelligence.

For a while, it seemed that both the US government and the scientific community were ready to embrace a greater truth; however, this soon proved not to be the case. After many years of initial research and planning, the *real* search for extraterrestrial intelligence began in 1991; a year later, Congress ordered a termination of all funding.

THE BEGINNINGS OF SETI

SETI began in 1959 with the publication of an article in the journal *Nature*. Two Cornell physicists, Giuseppe Cocconi and Philip Morrison, suggested a project in which the presence of extraterrestrial life could be detected with radiotelescopes tuned into the microwave band (3–30 GHz). However, such an endeavour was already being planned by a young astronomer, the now famous Frank Drake, who in the spring of 1960 scanned sun-like stars for signs of ETI (extraterrestrial intelligence) with an 85-foot dish in West Virginia. Drake hypothesised that a more advanced ETI somewhere out there would be transmitting a signal to catch our (or anyone else's) attention. If so, then they would use one particular frequency of significance. Drake thought that 21 cm (1.4 MHz), the neutral band of hydrogen, would be it. After scanning for some time on this frequency, the young astronomer found nothing, and so ended what he called Project Ozma.

The first government-funded SETI-type project was not in America but in Soviet Russia. During the 1960s, the Russians set up omnidirectional antenna stations to listen in on the heavens in search of signals that might be of intelligent origin. While Drake used a highly directional antenna system, the Russian system would pick up radio emissions from all directions. This strategy meant that if a signal were found, it would be difficult to determine from which direction it originated. On the other hand, the Russian astronomers would never make the mistake of looking in the wrong direction!

It was not until the beginning of the 1970s that the United States government gave any serious thought to searching the Universe for radio signals of ETI origin. The first move was made at NASA's Ames Research Center, Mountain View, California, where several projects were set up to study the technical considerations involved. A team of outside experts was assembled—including Bernard Oliver, who was on leave from the Hewlett Packard Corporation—to produce a detailed report, known as Project Cyclops. By the late 1970s, NASA's Ames Research Center and the Jet Propulsion Laboratory (JPL) in Pasadena, California, were engaged in projects studying the technical aspects of any SETI-type endeavour. Ames concentrated on examining 1,000 sun-like stars for intelligent life, much like Drake's original Project Ozma, in what was known as "targeted search" using sensitive equipment to detect weak or sporadic signals. Meanwhile, JPL was concerned with systematic sweeps in all directions in a complete sky survey.

It was not until 1988, after a decade of study, that NASA HQ had the go-ahead and in 1991 started scanning the cosmos for intelligent life. A year later, Congress terminated funding! It seems very strange that after so many years of developing the technology, the US government should suddenly terminate funding when the actual search was only just beginning. But is there more to this than meets the eye?

Back in the early 1990s, the author had contact with an individual who claimed to be a former KGB officer involved in infiltrating the US National Security Agency (NSA). While serving his home country, a former Soviet state, he was involved in assessing the NSA's signals analysis techniques. Since the Soviet Union's collapse, he has had no authority to answer to and so speaks freely on such subjects. He says that SETI was no more than a cover for a more subversive program. Like the launching of *Sputnik* was no more than an exercise in deploying nuclear weapons, SETI was about eavesdropping on the enemy. This makes a lot of sense, as the technologies involved are very similar indeed.

For a practical SETI program, one requires a system that can scan at high resolution a huge bandwidth of frequencies. Not only this, but it must be able to detect the presence of intelligent transmissions. The latter requirement is achieved using powerful algorithms—code-breakers—which use probability mathematics to analyse the incoming data. Another requirement is that the system should be able to pick out weak signals buried deep within the background noise. Described here is no more than the perfect eavesdropping system—a system that would give a government a great advantage over another.

SETI was the perfect cover and means of drawing in the country's brilliant minds: radio engineers, mathematicians and computer systems experts. SETI was a means of gaining the people's support, a project into which they could freely pump money. Meanwhile, the technology developed could be controlled and siphoned off for more subversive applications.

All the government wanted was the technology; the discovery of intelligence elsewhere in the Universe would at best be an inconvenience, so funding was terminated.

But what of today? As there is no USSR, is there any use for such technology? The answer is yes, for now *we* are the enemy. It is *our* communications which are being tapped into, using the technology developed for SETI.

SETI PROJECTS TODAY

After funding had been stopped, it was up to the scientists to carry on with the endeavour. To this end, they formed the SETI Institute which, mainly through private funding, carries on to this day the search for intelligent life in the Universe.

Continuing the strategy used by the Ames Research Center, Project Phoenix concentrates on the targeted search, scanning sun-like stars. There have been other SETI projects running in the background of the main government-sponsored project; for instance, SERENDIP (Search for Extraterrestrial Radio Emissions from Nearby Developed Intelligent Populations) has been going strong since 1979. This project has survived by piggybacking on ordinary radio astronomy research, mainly at Arecibo Observatory (as per the film *Contact*).

There are also projects that have been listening in on an entirely different part of the electromagnetic spectrum. OSETI (Optical Search for Extraterrestrial Intelligence) scans the skies for laser signalling from across the Universe. One prominent project, COSETI (Columbus Optical SETI), uses a 10-inch aperture telescope with a sensitive optical transducer and is equipped to monitor for both pulsed beacons as well as modulated continuous wave transmissions. Those in the optical SETI fraternity believe this to be a better option, as it allows greater power to be directed by their hypothetical ETIs trying to get in contact. This aspect of SETI was apparently covered in Bernard Oliver's original Project Cyclops, but again the Russians, namely Shvartsman and Beskin, got there first.

There are also groups who are trying to encourage members of the public to get involved. One such venture is SETI@Home, where you can help by downloading a screen-saver that number-crunches data from the latest radio telescope observations. So while your computer sits idle, it could be searching for "life out there". Another venture is the SETI League, which concentrates on the more technical aspects of SETI.

It is for the bored radio ham who wants a real DX (for those

who don't know, DX is the standard code for long distance on the air bands). Build the kit and download the software and you can be a mini Arecibo Observatory. The big plan is to link over the Internet everybody's mini SETI station to form one great big global dish.

This has been only a short overview of the SETI movement; there are many projects and endeavours that have not been mentioned. Science is going towards a goal that really has great implications for mankind, something everyone on Earth can appreciate. It is only a pity

that it may be going in the wrong direction, especially when one considers that such a goal may already have been reached—around a hundred and fifty years ago!

FUNDAMENTAL PROBLEMS WITH SETI

There are two main ways in which the SETI project may be directed. The first is to assume that a technologically developed civilisation, like ours, will have developed an electromagnetics-based global telecommunications system, as we have done. Any ETIs that are at a 70-light-year radius from Earth will be receiving the first of our TV transmissions. Equally, it is expected that any technologically advanced ETI civilisation will also be emitting a similar mass of radio signals; this would be the signature of an ETI.

The second approach is to assume that, somewhere out there, there is an ETI that is more advanced than we are and is constantly transmitting a signal to gain our attention. The second approach is preferred because the ETI in question would be transmitting a powerful signal in our direction, while modulating onto that same signal a simple message we can understand. For this reason, most SETI projects are geared up for the latter assumption.

One of the problems here is that the ETI must be fairly close to make the exercise worthwhile, otherwise they may not be around long enough to hear the reply! This is due to the finite speed of light, which here on Earth is more than fast enough for global

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communications. However, across the vastness of space, these 186,000-miles-per-second transmissions take a hell of a long time. For instance, to exchange greetings with an ETI near Proxima Centauri (the nearest star to us) would take around eight years! Would not a more advanced civilisation have discovered either a field or wave that could travel at a velocity greater than that of light? In which case, it would have a better chance of hearing a response.

This same limited velocity of light has another disadvantage: if the transmission has come from some far-distant star system, then the very civilisation from which it came could now be long gone! The electromagnetic wave may have made the world a smaller place, but it also reflects how vast the Universe is in both space and time.

Another assumption made by SETI is with regard to the definition of extraterrestrial intelligence. Looking for microwave transmissions of prime numbers from sun-like stars indicates a narrow criterion for intelligence. First, not all life may be biological; it may not even exist in the physical dimension. Even if it were, assuming it would spout out prime numbers indicates an expectation of a very similar psychology to our own. Also, who's to say their technological development went up the electromagnetic path? It is almost as though they are looking for other human life. So we have found nothing because we narrowed our search before we had even begun! What we need to do is widen our scope and so give ourselves a better chance of finding other intelligent life.

While at the Berkeley Radiation Laboratory, the now famous quantum physicist David Bohm made a startling discovery when conducting research on plasmas. He found that under certain conditions the electrons and ions that composed the plasma managed to organise themselves spontaneously into a single living unit. Like some amoeboid creature, the contained plasma was able to surround and destroy any foreign body that was within its vicinity. Bohm called these plasmic creatures "plasmons".

Considering that plasma is the most abundant state of matter in the Universe, it would seem logical to conclude that plasmons—not hydrocarbon-based life such as ourselves—may make up the greatest percentage of life in the cosmos.

EARLY CONTACTS WITH OTHER DIMENSIONS?

As has been mentioned before, communication may have been established with ETIs well over a hundred and fifty years ago, at the dawn of the modern development of electromagnetics.

The first electromagnetics-based communications system was developed by Samuel Morse in the 1830s and demonstrated in 1844; this, of course, was the telegraphic wire. In the original system, a battery and Morse key at the transmitting station actuated an electromechanical transducer some distance away at the receiving end, via a long stretch of cable. A return cable was then connected to the other terminal of the electromechanical device as a current-return back to the transmitting station's battery, these two cables being buried underground out of the way.

It was not long before it was discovered that it was possible to do away with the return cable and use the earth instead. In this

new system, only a single cable was used, the return current to complete the circuit being established through metal stakes inserted into the ground; this was known as a "ground return". As soon as this was done, there were reports of anomalous power surges, so great that telegraph operators complained of big fat blue sparks jumping between their key contacts. Eventually it was decided that there was no point in using a battery any more, and so telegraph networks operated using the power within the earth.

In 1849, Alexander Bain invented the first well-known electrochemical recorder, which would receive, record and print out an incoming transmission through a chemical action. Many companies soon replaced their old electromechanical devices with this more sensitive electrochemical substitute. Due to their low current consumption, these devices were even better at being powered by the natural electrical energy within the ground. However, when many telegraphic operators returned to their posts after a night's sleep, they would find parts of sentences and strange geometric patterns recorded by the device. Could this have been early contact with an ETI or even an EDI—an extradimensional intelligence?

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NIKOLA TESLA'S CLOSE ENCOUNTER

Dr Nikola Tesla, the little-known inventor of the AC electrical power system, dedicated much time to researching the high-voltage, high-frequency electrical structure of the planet. During these investigations at his Colorado Springs research station, Tesla noticed that his instruments were receiving some unusual signals. In his own words, he wrote:

I can never forget the first sensations I experienced when it dawned upon me that I had observed something possibly of incalculable consequences to mankind. I felt as though I were present at the birth of a new knowledge or the revelation of a great truth....

My first observations positively terrified me, as there was present in them something mysterious, not to say supernatural, and I was alone in my laboratory at night; but at that time, the idea of these disturbances being intelligently controlled signals did not yet present itself to me. The changes I noted were taking place periodically and with such a clear suggestion of number and order that they were not traceable to any cause known to me.

I was familiar, of course, with such electrical disturbances as are produced by the Sun, Aurora Borealis and Earth currents, and I was as sure as I could be of any fact that these variations were due to none of these causes. The nature of my experiments precluded the possibility of the changes being produced by atmospheric disturbances, as has been rashly asserted by some.

It was some time afterward when the thought flashed upon my mind that the disturbances I had observed might be due to an intelligent control. Although I could not decipher their meaning, it was impossible for me to think of them as having been entirely accidental. The feeling is constantly growing on me that I had been the first to hear the greeting of one

planet to another. A purpose was behind these electrical signals...

Tesla was investigating a form of radio very different to the one we use today. Our present radio communications use transverse electromagnetic waves that travel through the air—the same technology SETI uses to scan the Universe for signs of ETI. The electromagnetic waves used in Tesla's system were longitudinal and travelled through the Earth and/or the plasmic layer of the atmosphere, i.e., the ionosphere. But it was through the use of this latter system—and not the type used by SETI—that signals of non-human origin had been received.

This incident plagued Tesla's mind for the rest of his life, and so played a part in his last publicly announced invention. While he had spent much of his life investigating the nature of high-voltage, high-frequency electricity, particularly with regard to employing it in a system to transmit electricity without wires, Tesla changed direction in the late 1930s and did research into high-voltage, direct-current electricity. His plan was to transmit electrical energy in the form of a particle beam—an idea that was not practically realised until the late 1980s with SDI, the "Star Wars" project. While his system for transmitting energy via high-frequency potentials was limited to the Earth, Tesla's new particle-beam system was intended to transmit power to other planets! He then hypothesised that if the same beam were modulated with the vibrations of the human voice, we would also be able to communicate with the ETIs who dwell upon our neighbouring planets.

As far as is known, Tesla never had the opportunity to put his plan into action. The political climate at the time, which resulted in World War II, had generated much paranoia. The British had stated that they had a new weapon, a "death ray" invented by their own Mr H. Grindell Matthews. The Russians reacted and stated that they also had such a weapon, invented by Comrade Grammachikoff. Tesla, being a patriot of his adopted country, stated that he had also invented a similar device. Since then, Tesla's instrument of benign communication has been referred to as the "death ray".

GRAVITY WAVE DETECTORS

In his general theory of relativity, Dr Albert Einstein found a solution that modelled an entirely new type of wave: the gravity wave. General relativity describes the force of gravity as a geometric warping in space-time; if the warping were to take the shape of a wave, then this would be a gravity wave.

While electromagnetic waves occupy three special dimensions (as well as time), gravity waves exist in five, making them hyperdimensional in nature. However, Einstein stated that these waves probably travelled at the same speed as light, 300,000 km/s, which means that nothing is gained in using gravity waves over their electromagnetic counterpart.

Officially there has been no detection of these waves; however, the design of such gravity detectors has been based on general

relativity theory. There are some who have developed their own theories and so their own detector technology. They also claim to have detected transmissions from other worlds.

T. TOWNSEND BROWN AND ELECTROGRAVITICS

Thomas Townsend Brown is most remembered, if remembered at all, for his work in antigravity propulsion. Brown found a link between gravity and the force of electricity, based upon the humble electrical condenser or capacitor. While still to graduate from high school, he built a small device that reduced in weight when a high-voltage potential was applied across its terminals. This was the first in a long line of electrogravitic devices able to prove experimentally a unified field theory in which electromagnetism and gravity are shown to be linked.

Whilst studying at Caltech, Brown hypothesised the existence of a form of radiation quite different to the transverse electromagnetic wave. He called it "radiant energy" and thought that it was present throughout the Universe and was gravitational in nature, but as yet was invisible to instruments.

Brown's theory was soon picked up by the press and publicised in several local newspapers. He had already received a negative response from his lecturers over his work with high-voltage weight reduction, so this new line of enquiry was not received well. He was told that such a wave was impossible because it would require gravity to be bipolar—to be able to repel as well as attract.

Brown did not receive any support for his research until he entered Dennison University where he met Dr Alfred Biefeld. Dr Biefeld was one of only a few who could claim to be one of Einstein's classmates back in Switzerland, and so was quite interested in the nature of gravity. In fact, when Brown had described to him his research into the weight reduction of high-voltage capacitors, Biefeld was more than happy to help the young physicist with his investigations.

Biefeld had already considered the possible gravitational effects of charged electrical capacitors after studying the work of the great Michael Faraday, the so-called Father of Electricity. It is a little-known fact that Faraday made the following profound statement as far back as the late Victorian age: "Electrical capacity is to gravity, as inductance is to magnetism". It is a well-known fact that when a current flows through a coil of wire, a magnetic field is generated around the same. In fact, the inductor (the technical name for a coil of wire) is able to store electrical energy within the magnetic field generated. Now, an electrical condenser or capacitor is made up from two sheets of metal separated by an insulator, known as the "dielectric". When an electrical potential is applied across the two plates, the molecules of the dielectric all align with the electric field.

If Faraday is correct, then the energy stored in a capacitor is in the form of a gravitational field, much like the magnetic field of an inductor.

Brown found that such an effect was only noticeable if the following conditions were met:

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Brown found a link between gravity and the force of electricity, based upon the humble electrical condenser or capacitor.

- 1) The K-factor of the dielectric (its ability to store energy) was high (in the order of 2,000 or more);
- 2) The density of the dielectric was high (in the order of 10 g/cm³ or more);
- 3) The applied voltage across the capacitor was high (in the 100,000 V range).

Brown also found that the force generated by charged capacitors was directed towards the positive plate; that is to say, weight reduction only occurs when the positive plate is upside with respect to the negative plate. If the negative plate is above, then the device increases in weight. Biefeld and Brown worked together in investigating what was later termed the "Biefeld-Brown effect" in the general study of electrogravitics.

In 1930, Brown entered the US Navy and became a member of staff at the Naval Research Laboratories (NRL) in Washington, DC. As he was pretty much left to do as he pleased, he carried on with research into the Biefeld-Brown effect. While investigating different substances for suitability as dielectric material, Brown discovered a curious phenomenon.

One of the characteristics of a dielectric is its resistivity—how good an insulator it is. If resistivity is not high enough, then the dielectric is rendered inefficient. This is usually a fixed value, but Brown found that the resistivity of some materials would change over time. In a classified naval report entitled "Anomalous Behaviour of Massive High-K Dielectrics", Brown described how the resistivity of some materials would alter and even follow sidereal diurnal changes. He also noted that some materials would generate spontaneous radiofrequency bursts whose amplitude was a function of the material's mass and K-factor. Also, he found many granitic and basaltic rocks to be electrically polarised; that is, they behaved like electric cells or batteries. These rocks would have as much as 700 mV across them, the amplitude of which would also change in sympathy with solar sidereal cycles. Again, the rock's sensitivity to such changes depended upon its K-factor and mass. It was this latter relation that suggested the phenomenon is gravitational.

During 1937 in Pennsylvania, a Navy-sponsored monitoring station was in operation to record such changes in the electrical self-potential of these rocks. It was noted that there was a strong correlation with the cycles of the Moon, which added further support to the hypothesis that the effect is gravitational in nature. Again, another station was in operation in 1939 in Ohio, which recorded similar patterns to those found in Pennsylvania, and it was concluded that the effect must have had some common outside source. Both research stations were set up within sealed vaults, shielded to exclude any outside electromagnetic interference. Meanwhile, large granitic and basaltic rocks wired to sensitive pen-chart recorders monitored the self-potential variations. The Second World War paused any further investigation into the phenomenon until 1944.

After the War, Brown set up yet another station, but this time on the West Coast in California. He found that the patterns did not match those recorded on the East Coast; however, he did give a possible explanation as to why. He suggested that due to the radiofrequency voltages found in less complex dielectric materials such as titanium dioxide, the detected energy was at these high frequencies and that basaltic and granitic rocks somehow

converted the energy into a DC potential. This process is well known in electronics and is called "rectification", and so the internal structure of these rocks could naturally perform this same process. Now the rocks used in the East Coast investigations were different to those used in California (i.e., from different deposits), so Brown concluded that different rocks are tuned into different bands of this radiofrequency energy. As different frequency bands would fluctuate differently, then it follows that the variations in the self-potential of two different rock deposits would also be different.

From 1950 onwards, Brown concentrated his efforts towards developing the Biefeld-Brown effect so that it could be employed in aviation. It was not until 1970 that Brown returned to investigating petrovoltaics, until his death in 1985.

From these investigations, it is clear that the phenomenon is gravitational in nature and that it manifests as high-frequency electricity. Brown concluded that the energy is in fact the radiant energy he had hypothesised while still at Caltech. This energy is high-frequency gravitational radiation which is being constantly emitted from astronomical objects in outer space. While simple high-K dielectric materials would pick up the radiation and convert

it directly into electrical energy, more complex dielectrics such as granitic and basaltic rock would convert the energy into DC electricity. Not only this, but these rocks are in fact tuned to only a portion of the total radiated energy present throughout the Universe. This means that your average lump of basalt is a natural gravity-wave AM receiver, tuned into only a few specific "radio stations"!

It appears that Brown never analysed these high-frequency signals to see if any of them were of

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ETI origin. However, in 1953 he filed a patent that describes a system for intelligent communication via modulated gravitational radiation. In the patent, Brown describes how to convert a normal, high-power radio transmitter into a gravity-wave transmitter, based upon the principles of electrogravitics. The modification is made only to the antenna system, the actual electronics remaining unchanged. A large coil of wire has its base connected to the output of the high-power transmitter so that the radiofrequency energy is end-fed. The other end of the coil has a spherical, electrically conducting, high-density body connected. This spherical body acts as an isotropic capacitor, and so forms a tuned circuit with the coil. In operation, the dense spherical body becomes electrified (but not leaking energy through corona discharge) with high-voltage, high-frequency electricity. The high voltage and mass of the isotropic capacity result in an electrogravitic action; thus gravitational waves of the same frequency as the end-fed energy from the transmitter are emitted from the dense, isotropically capacitive body.

Brown suggests that the spherical body be constructed from lead, as this is both dense in mass and a conductor of electricity. Also, so as to avoid electromagnetic radiation, the whole assembly should be enclosed inside a large vault; for example, within a mountain. A similar set-up is employed so as to receive the transmission, where the receiving antenna is again replaced with this same assembly. Interestingly, this system is very similar to that employed by Tesla at Colorado Springs—the same system that allegedly received signals from an ETI.

Much of Brown's work is under wraps by the US government, held within the Wright Patterson Air Force Base technical library. However, family members still have his notes and are in the process of making them available to the public.

HODOWANEC'S GRAVITY-WAVE DETECTOR

Working unaware of, but parallel to, Thomas Townsend Brown was Gregory Hodowanec. While developing a new, sensitive weighing balance, Hodowanec noticed slight variations in the reference weights he was using. Assuming that the problem was with the circuitry he had designed, he went about trying to counteract these anomalous variations. After some "stab in the dark" experimentation, Hodowanec found that the humble capacitor in the right part of the circuit counteracted these unusual variations. But the question remained: how could a capacitor be able to generate the signal to nullify these apparent variations in standard reference weights?

On further investigation, Hodowanec found that his weighing system was not at fault, nor were the reference weights. What he did find, however, was that the Earth's gravitational field is not stable but fluctuating, sometimes at quite a rapid rate. The weighing system he had developed was so sensitive that it picked up these variations as changing values in the reference weights. He concluded that somehow the humble capacitor was able to pick up these gravitational variations and convert them into an electrical signal.

From this discovery, Hodowanec went on to develop a gravitational detector that used modern electronic components. He knew that any induced effect on a capacitor would result in a displacement current; hence, the circuit he developed was a simple operational amplifier wired up as a current-to-voltage converter. This circuit was connected to the

sensing capacitor, while its output was fed into a standard voltage amplifier which in turn drove a loudspeaker. The signals received by this simple circuit were described as being similar to whale song, but this evidence is inconclusive. But it does seem that some very strange, yet structured, audio signals were received by this comparatively simple device.

Hodowanec stated that his device received monopole gravity waves, different to the quadrupole waves described in Einstein's general theory of relativity. Also, while the gravity waves theorised by Einstein were limited to the speed of light, these monopole waves described by Hodowanec could reach any point in space in one Planck second (10^{-44} seconds). He also stated that electronic equipment had been receiving this gravitational radiation for a very long time, but it had been mistaken for $1/f$ noise (where the intensity is inversely proportional to the frequency over a spectrum of noise). It is similar to what you get when your radio is not tuned to a station, which is that rushing water type of sound. However, $1/f$ has a deeper sound, perhaps more resembling the crashing of sea waves. Technically, it is a spectrum of random frequencies which have equally random intensities, but in general the lower frequencies are higher in intensity than the higher frequencies. If you were to look at this with reference to white light (which is composed of all light frequencies in the visible spectrum), then you would perceive it as a soft pink light. For this reason, $1/f$ noise is often referred to as "pink noise".

Hodowanec also hypothesised that the Universe is filled with this radiation and that the detected isotropic microwave background radiation, thought to be the echo from the Big Bang (which does sound like $1/f$ noise), is actually gravity-wave emissions. He stated that the instruments that were picking up this signal were in fact receiving the gravitational radiation rather than the electromagnetic energy from the beginning of the Universe.

During his investigations with the device, Hodowanec found Auriga and Perseus in the Milky Way to be the source of many natural, yet unusual, audio signals. He stated that the general background noise is modulated by the passing of large astronomical bodies which cast a shadow over these emissions. This means that when such radiation is demodulated, what one would hear would be the movements of planets, stars and galaxies. Much of the high-frequency radiation is generated by astronomical processes such as stars going supernova, star quakes and even the tectonic movements within nearby planets.

However, it was not long before Hodowanec received signals of an unnatural origin while scanning the skies with his gravity-wave detector. One evening, for only eight minutes, Hodowanec received a train of equally spaced impulses that resembled the Morse code for the letter S. After determining the origin of these

signals, he attempted to make contact using more conventional means (a Morse radio transmitter). To his surprise, he received on the gravity-wave detector a reply made up of random Morse code containing the letters E, I, T, M, A, N, R, K and S. During another transmission, Hodowanec transmitted a sequence which he received back as a copy with the letters G and D added. In the end, he was able to hold an almost coherent conversation with the ETI he had contacted. Interestingly, he found that only at certain locations could he establish

contact with the ETI. Also, judging from several years' experience in Morse code, he found that the transmissions were not synthetic; the ETI was using a Morse key, and in fact there was more than one entity operating it!

It would seem, then, that there are many gravitational signals throughout the Universe. Many of them are natural and high in frequency. These signals become modulated by the movement of astronomical bodies such as stars, galaxies and even planets. But among these natural signals may be the transmissions of a host of extraterrestrial intelligences.

It is not clear whether the signals received by Brown and Hodowanec are gravitational in nature. Even Townsend Brown stated that the evidence pointed to this hypothesis, but the subject was still inconclusive in his own mind. There may be a host of energies and radiations that still remain undiscovered.

One that has had little attention is Dr Wilhelm Reich's "orgone energy". This appears to be the same energy that is known as *prana*, *chi* and the *od* or "odyllic force" discovered by Baron Karl von Reichenbach. Interestingly, when Reich had a device designed to detect the orgone, it was based upon the electrical capacitor! This energy is very closely related to living organic matter, and so has often been identified as the "vital force"—the energy that distinguishes between animate and inanimate matter.

The well-known orgone researcher Trevor Constable conducted much research into the weather-altering effects of the orgone, and

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hypothesised (backed up with experimental evidence) that many UFOs are actually biological entities. He went on to suggest that the orgone could be manipulated and engineered, as it is based upon fundamental laws. If he is right, then a new branch of technology, based around the life force, could be developed. Such a technology is described as being "biodynamic" (although Constable looked further ahead and coined the term "etheric engineering"), and is the real meeting point between physics and biology: biophysics. Is it then possible to develop a communications system based upon the principles of biodynamics?

BIODYNAMIC COMMUNICATIONS

In 1962, Silesian-born engineer L. George Lawrence, employed by the LA Space-Science Corporation to develop jam-proof missile components, decided to try using biological material in electronic sensors. His first line of enquiry led him to the work of Alexander Gurwitsch, one of the pioneers of vital force research. Gurwitsch showed that cells appear to affect each other during the process of mitosis, which led him to develop a theory in which cells communicate through what he called "mitogenic rays".

Lawrence also reviewed the work of Cleve Backster, the polygraph specialist who studied the psycho-galvanic reaction of plants. Backster used polygraph-type equipment to monitor the physiological activity in plants and discovered some amazing effects. One of the most unusual is a plant's ability to detect the presence of a plant murderer! Lawrence used Backster's original circuit designs as a springboard for his own research into biological sensors. He discovered that such biological transducers are able to detect changes in a variety of different environmental parameters including magnetism, temperature and humidity.

While Backster used a pen-chart recorder to indicate reactions, Lawrence replaced this with a voltage-controlled audio oscillator whose pitch changed in sympathy with biological changes. Eventually he replaced Backster's galvanic response system with piezo-electrometers, which gave better stability with greater sensitivity. The first biodynamic transducers were simply vegetable samples wired up and held in a temperature-controlled bath.

With further advancements, Lawrence developed a sensor which consisted of two small quartz crystal wafers bonded together with specific organic materials. Whatever transducer was used, they were all sealed within a Faraday cage which in turn was held within a lensless telescope-type assembly complete with sighting apparatus. All investigations were conducted in what Lawrence referred to as "electromagnetic deep fringe" areas which were outside the influence of almost all electromagnetic fields so as to avoid false readings from external sources.

During one test, Lawrence pointed a newly developed biosensor at a tree some distance away, that he had wired up to a remotely controlled battery circuit. When the switch was activated, a current would pass through the tree so as to electrically stimulate it. Meanwhile, the biosensor's output signal was monitored for dramatic changes. Sure enough, when the tree was stimulated, the biosensor's output changed. This indicated some form of mitogenic ray communication between the tree and biosensor. However, while having lunch, he left the biosensor pointing in some random direction. To his amazement, the audio output from the biosensor's circuit started to warble rapidly, indicating some

mitogenic or biodynamic signal being picked up. After an intense investigation, Lawrence concluded that the signals had originated from outer space and were of intelligent origin.

Initially, he thought the signals were from Ursa Major, but on further investigation he found that they probably originated from the galactic equator. He also concluded that the signals were not aimed at Earth, but were an overspill of communication between companion civilisations. As for the signal coding, Lawrence was confident that they would not be in the form of a structured language. Instead, he felt that they would be graphic in nature, so he decoded them using digital spectrograms displayed on a standard 8-bit resolution grey-scale. These graphic signals were received using some of the most advanced biodynamic transducers, consisting of carefully manufactured synthetic biochemical substances.

There has been little success in tracing the elusive George Lawrence, mainly due to the fact that "George Lawrence" was a pseudonym employed by the author who reported this research in several electronics magazines in the mid-1970s. All that is known of this author is that he was employed by several government

agencies that exercised strict security measures. This research into biodynamics was a spin-off of the work he had conducted while within their employment. However, it is worth mentioning that these agencies were mainly involved in NASA projects around the time of SETI.

There are many energies that lie undiscovered, yet already we are trying to find a unified field theory based on the few energies of which we are aware. There have been many discoveries in the past that

could have brought us closer to the truth; however, mainstream science has ignored nearly all of them.

The human race has a great understanding and control over the force of electromagnetism. However, it is naive to think that this is the only method through which to communicate and that all other civilisations out there have developed technologically in this same direction. It must also be remembered that there are other dimensions parallel to our own. These, too, may be contacted, but not necessarily by looking upwards. We must first open our minds, then ask the question, "Is there anybody out there?"

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About the Author:

Gavin Dingley is an electronics R&D engineer by profession, but since college has questioned the so-called laws of nature, particularly those pertaining to electromagnetism. To this end, he has extensively researched the work of Dr Nikola Tesla. His main goal is to develop technologies based upon these principles.

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